

Ifw



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,163	10/09/2003	Chun-Liang Lai	3074/106	6407

7590 10/04/2005

Dennison, Schultz & Dougherty
612 Crystal Square 4
1745 Jefferson Davis Highway
Arlington, VA 22202-3417

EXAMINER

SACKEY, EBENEZER O

ART UNIT PAPER NUMBER

1626

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED
OIPE/IAP

OCT 12 2005

Office Action Summary

Application No.

10/681,163

Applicant(s)

LAI ET AL.

Examiner

EBENEZER SACKKEY

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Status of Claims

Claims 1-11 are pending.

Specification

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Objection to Claims

Claims 1-3, 7 and 11 are objected to because the specification, including the claims, may contain chemical and mathematical formulas, but shall not contain drawings or flow diagrams as claimed herein. See 37 CFR § 1.58.

In addition, applicants need to provide better and well-defined structures of compounds 1-6 in claim 1 because the present copy in the file is unreadable.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 7 and 11 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. Operational conditions such as solvents, temperature of reaction time critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). On pages 4 and 5 of the specification, applicants have disclosed operational conditions such as solvents, additives, reaction temperature for heating reactants and ligand employed in the instant process. However, the above conditions are absent from the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishiyama et al., (U.S. Patent number 5,929,281)('281').

Applicants claim a method for preparing three types of benzidine compounds (compounds 4, 5, and 6) in a specific ratio, said method involves taking two types of diphenylamine compounds (substituted and unsubstituted diphenylamine) and one type of biphenyldihalide as reactants with an additive to prepare compounds 4, 5 and 6.

Nishiyama et al., discloses the preparation of arylamine from a reaction between an aromatic halide and an aromatic amine in the presence of trialkylphosphine catalyst. See column 1, lines 55-67.

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turner et al., (U.S. Patent number 4,764,625)('625'), Akasaki et al., (JP 62-267749)('749') and Nishiyama et al., (U.S. Patent number 5,929,281)('281') each taken alone.

Applicants claim a method for preparing three types of benzidine compounds (compounds 4, 5, and 6) in a specific ratio, said method involves taking two types of diphenylamine compounds (substituted and unsubstituted diphenylamine) and one type of biphenyldihalide as reactants with an additive to prepare compounds 4, 5 and 6.

Determination of the scope and content of the prior art (MPEP §2141.01)

Turner et al., teach a process for preparing arylamines by condensation of mono-or ditertiary amine and a mono or di-iodoaryl compound in the presence of potassium hydroxide and copper catalyst. See the entire reference, especially column 1, lines 12-23 and 63-68, column 2, lines 9-10 and 37-39.

Akasaki et al., teach a process for preparing N, N'-tetraphenylbenzidine compounds by treating halobiphenyls of formula (II) with a diphenylamine compound. See the entire reference, especially page 323, 324 and 325.

Nishiyama et al., discloses that catalyst comprising trialkylphosphine and palladium compound exhibits high selectivity for the synthesis of aryl amine from aryl halide such as aryl bromide, aryl iodide and aryl chloride and aromatic amine. See column 1, lines 56-67 and column 2, lines 11-17.

Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)

The difference between the instant method and the prior art is that applicants are claiming a particular ratio of multiple diphenylamine compounds (reactants 1 and 2) with a biphenyldihalide compound (reactant 3), whereas '625' is silent on the use of multiple amine compounds reacting with the biphenyldihalide compound. Note '625' teaches the use of applicants reactant (1) and (2), see column 1, lines 66-67. Also note the use of potassium hydroxide (additive), column 2, line 37; purification and recrystallization, column 3, line 19. The differences applicable to '625' also apply to '749' except potassium carbonate (additive) is employed. Note the mixture of products prepared by '749' on pages 324-325. Thus, at the time of filing this application, the instantly claimed method would have been suggested to one of ordinary skill in the art.

Therefore, the recitation of specific ratios does not render the instant claims unobvious because method parameters such as ratios are well within the purview of the skilled artisan and can be manipulated as claimed herein. Furthermore, combining reactants known for the same purpose in order to form an additional reactant also useful for the same purpose is considered obvious. See *In re Kerkhoven*, 626 F.2d 846, 205 USPQ (CCPA 1980)

Finding of prima facie obviousness---rational and motivation (MPEP §2142-2143)

The motivation to make instant compounds 4, 5 and 6 derives from the expectation that each of the reactants have been shown by the references as capable of being employed to prepare aryl amines and thus would be reasonably expected to produce the claimed compounds. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a reasonable expectation that the prior art method would also produce compounds similar to 4, 5 and 6. Therefore, the instantly claimed method would have been suggested to one of ordinary skill in the art absent a showing of unexpected results.

Any inquiry concerning this communication or earlier communications from the

Art Unit: 1626

examiner should be directed to E. Sackey whose telephone number is (571) 272-0704.

The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm.

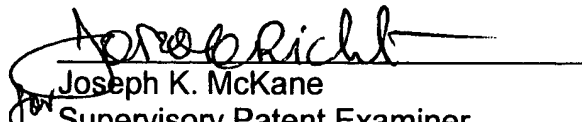
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph K. McKane, can be reached on (571) 272-0699. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is

(571) 272-1600.

EOS

September 29, 2005


Joseph K. McKane
Supervisory Patent Examiner
Art Unit 1626, Group 1600
Technology Center 1

Notice of References Cited	Application/Control No. 10/681,163	Applicant(s)/Patent Under Reexamination LAI ET AL.	
	Examiner EBENEZER SACKEY	Art Unit 1626	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,764,625	08-1988	Turner et al.	548/442
*	B	US-5,929,281	07-1999	Nishiyama et al.	564/386
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	62-267749	11-1987	JP	AKASAKI ET AL.	----
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

⑨ 日本国特許庁(JP)

⑪ 特許出願公開

⑫ 公開特許公報(A)

昭62-267749

⑬ Int. Cl.

識別記号

庁内整理番号

⑭ 公開 昭和62年(1987)11月20日

G 03 G 5/06

7381-2H

審査請求 未請求 発明の数 2 (全5頁)

⑮ 発明の名称 新規なベンジジン化合物及びその製造方法

⑯ 特 願 昭61-110613

⑰ 出 願 昭61(1986)5月16日

⑱ 発 明 者 赤 崎 豊 南足柄市竹松1600番地 富士ゼロックス株式会社竹松事業
所内
⑲ 発 明 者 佐 藤 克 洋 南足柄市竹松1600番地 富士ゼロックス株式会社竹松事業
所内
⑲ 発 明 者 藪 内 尚 哉 南足柄市竹松1600番地 富士ゼロックス株式会社竹松事業
所内
⑲ 発 明 者 田 中 浩 之 南足柄市竹松1600番地 富士ゼロックス株式会社竹松事業
所内
⑳ 出 願 人 富士ゼロックス株式会 東京都港区赤坂3丁目3番5号
社
㉑ 代 理 人 弁理士 大家 邦久

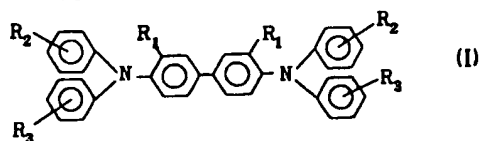
明 細 書

1 発明の名称

新規なベンジジン化合物及びその製造方法

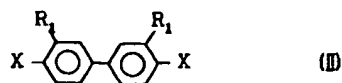
2 特許請求の範囲

1. 一般式(I)



(式中、R₁ はアルキル基、アルコキシ基またはハロゲン原子を表わし、R₂ 及び R₃ は互に独立したものであつて、それぞれ水素原子、アルキル基、アルコキシ基、ハロゲン原子、アルコキシカルボニル基または置換アミノ基を表す。) 以示されるベンジジン化合物。

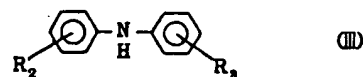
2. 一般式(II)



(式中、R₁ はアルキル基、アルコキシ基または (産業上の利用分野)

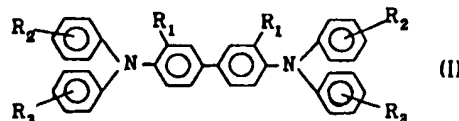
ハロゲン原子を表わし、X はハロゲン原子を表わす。)

以示されるジハロビフェニル誘導体と一般式(III)



(式中、R₂ 及び R₃ は互に独立したものであつて、それぞれ水素原子、アルキル基、アルコキシ基、ハロゲン原子、アルコキシカルボニル基または置換アミノ基を表わす。)

以示されるジアリールアミンとを反応させることを特徴とする一般式(II)



(式中の各記号は前記と同じ意味を表わす。)

以示されるベンジジン化合物の製造方法。

3 発明の詳細な説明

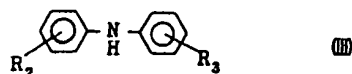
本発明は電子写真感光体等の電荷輸送材料として有用な新規なベンジジン化合物及びその製造方法に関する。

(従来の技術)

近年、電子写真感光体として有機材料を用いる試みがなされている。この有機感光体は電荷発生能を有する材料(以下電荷発生材という。)と電荷輸送能を有する材料(以下電荷輸送材という。)とを組合せて用いるものであり、電荷発生層と電荷輸送層とを積層したり、電荷輸送材中に電荷発生材を分散させた層にしたりして用いられている。輸送される電荷としては正孔もしくは電子が考えられるが、電子輸送能を有する電荷輸送材料(n型有機半導体)としてはポリビニルカルbazol(PVK)とトリニトロフルオレノン(TNF)の1:1の混合物が実用に供せられており、また正孔輸送能を有する電荷輸送材料としてはピラゾリン、ヒドラゾンやベンジジン誘導体等が知られている(特開昭52-120834号、同53-27033号等)。(発明が解決しようとする問題点)

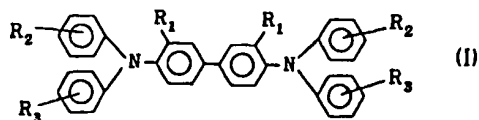
(式中、 R_1 はアルキル基、アルコキシ基 またはハロゲン原子を表わし、 X はハロゲン原子を表わす。)

で示されるジハロピフエニル誘導体と一般式(III)



(式中、 R_2 及び R_3 は互に独立したものであつて、それぞれ水素原子、アルキル基、アルコキシ基、ハロゲン原子、アルコキシカルボニル基または置換アミノ基を表わす。)

で示されるジアールアミンとを反応させることを特徴とする一般式(I)



(式中の各記号は前記と同じ意味を表わす。)

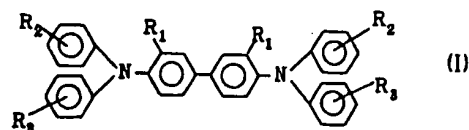
で示されるベンジジン化合物の製造方法である。

前記の一般式(I)で示されるベンジジン誘導体は、

本発明の目的は正孔輸送性の電荷輸送材料として耐酸化性にすぐれた有用な新規なベンジジン誘導体及びその製造方法を提供することを目的とする。

(問題点を解決するための手段及び作用)

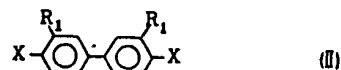
本発明の第1の対象は一般式(II)



で示されるベンジジン化合物である。

一般式(II)中、 R_1 はアルキル基、アルコキシ基またはハロゲン原子を表わし、 R_2 及び R_3 は互に独立したものであつて、それぞれ水素原子、アルキル基、アルコキシ基、ハロゲン原子、アルコキシカルボニル基または置換アミノ基を表わす。

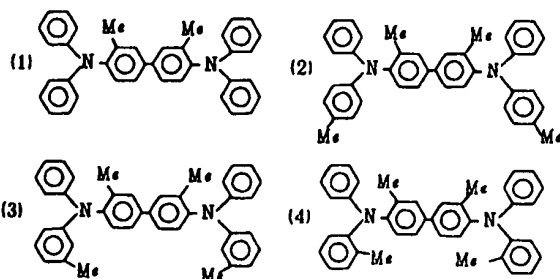
本発明の第2の対象は一般式(III)

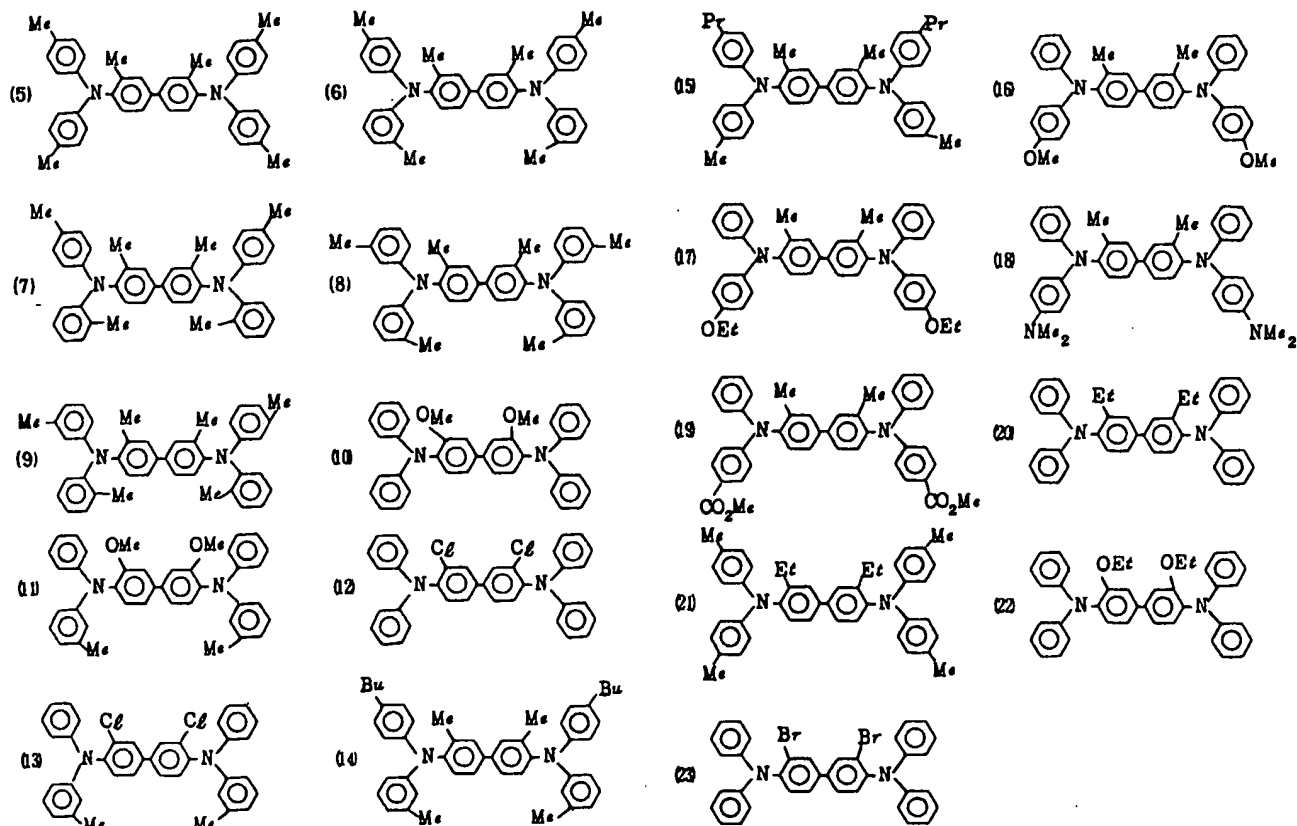


式IIのジハロピフエニル誘導体1 molと式IIIのジアールアミン2 molと、縮合反応中に生ずるハロゲン化水素を中和するに充分な量(2 mol以上)のアルカリ塩(K_2CO_3 等)と触媒(銅粉末等)とを窒素雰囲気下で溶媒(例えばスルホラン)中で加熱し(180~230℃)、反応終了後冷却し、水洗、抽出等の操作により生成物の溶液を得、これをも更にガラムクロマトグラフィー等で精製することによつて製造することができる。

本発明のベンジジン化合物の具体例を下記に構造式で示す。式中、Meはメチル基、Etはエチル基、Prはプロピル基を表わす。

<具体例>

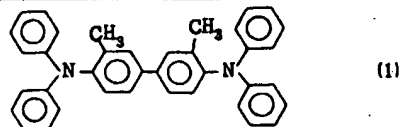




〔実施例〕

実施例 1

3,3'-ジメチル-N,N,N',N'-テトラフェニル-(1,1'-
-ビフェニル)-4,4'-ジアミンの合成



300 ml三口フラスコ(ジムロートコンデンサーを付ける)に、ジョードビフェニル誘導体 8.68 g (0.0200 mol)、ジフェニルアミン 6.77 g (0.0400 mol)、炭酸カリウム 8.29 g (0.0600 mol)、銅粉 1.2 g、およびスルホラン 30 mlを入れ、窒素置換後、230℃で28時間加熱撹拌する。反応混合物を約100℃まで冷却し、水 200 mlを加え、約15分加熱撹拌した後、上澄み液を除く(この操作を2回行なう)。次いでメタノール 100 mlを加え、同様操作を行なう。残さを塩化メチレンに溶かし、溶液を無水硫酸ナトリウムで乾燥後、溶媒を留去するとかつ色油が得られる。この油を、アルミナクロマト(Woelm, N, Akt. I)で分離すると、n-

ヘキサン-塩化メチレン(4:1)流出部から、5.0 gの無色油が得られる。この物はシリカゲルTLC(n-ヘキサン-エーテル=3:1)で、 $R_f=0.7$ 付近のケイ光性の化合物である。得られた無色油を、n-ヘキサン-エーテルで結晶化すると、mp 165~175℃の無色結晶となり、これを、ベンゼン-ヘキサンより再結晶すると、mp 175~178℃の無色粉状結晶 3.2 gが得られる。収率 31%。

元素分析: $C_{28}H_{32}N_2$ として

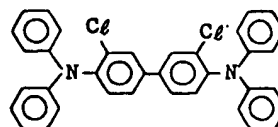
計算値 C 88.33% H 6.24% N 5.42%

実測値 C 88.37% H 6.21% N 5.26%

赤外線吸収スペクトル(KBr錠剤法)を第1図に示す。

実施例 2

3,3'-ジクロロ-N,N,N',N'-テトラフェニル-(1,1'-
-ビフェニル)-4,4'-ジアミンの合成



03

ジヨードピフェニル誘導体 10.0 g (0.0211 mol)、ジフェニルアミン 7.13 g (0.0422 mol)、炭酸カリウム 8.73 g (0.0632 mol)、および銅粉 1.22 g の混合物を、窒素置換後、220 °C で 22 時間加熱撹拌する。反応後、室温まで冷却し、塩化メチレンを加え、可溶部を溶解させた後、ろ過し、ろ液の溶媒を留去すると、かつ色油が得られる。反応混合物を、アルミナカラム (Woelm, N, Akt I) で分離すると、*n*-ヘキサン-塩化メチレン (10:1) 溶出部より無色固体が得られる。アセトンより再結晶すると、無色針状晶 3.31 g が得られる (mp 182 ~ 183 °C)。収率 28 %。

元素分析: $C_{36}H_{26}N_2Cl_2$ として

計算値 C 77.56% H 4.70% N 5.02%

実測値 C 77.54% H 4.59% N 5.05%

NMR スペクトル (CDCl₃ 溶液) を第 2 図に示す。

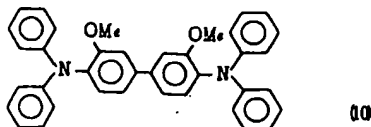
実施例 3

3,3'-ジメチル-N,N'-ジフェニル-N,N'-ビス
(3-メチルフェニル)-(1,1'-ビフェニル)-
4,4'-ジアミンの合成

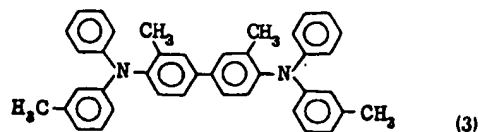
実測値 C 88.06% H 6.54% N 5.23%

実施例 4

3,3'-ジメトキシ-N,N,N',N'-テトラフェニル-
(1,1'-ビフェニル)-4,4'-ジアミンの合成



ジヨードピフェニル誘導体 20.0 g (0.0430 mol)、ジフェニルアミン 14.5 g (0.0858 mol)、炭酸カリウム 17.8 g (0.129 mol)、および銅粉 2.4 g の混合物を、窒素置換し、180 °C で 72 時間加熱撹拌する。反応後、室温まで冷却し、塩化メチレンを加え、可溶部を溶出させる。ろ過後、溶媒を留去すると、かつ色油が得られる。エーテル-*n*-ヘキサンで結晶化すると、黄色結晶が 13.0 g 得られる。塩化メチレン-アセトンから再結晶すると、mp 205 ~ 206.5 °C の微黄色結晶 (8.35 g) となる。この結晶を塩化メチレンに溶かし、活性炭で処理し、ろ過後、溶媒を留去し、塩化メチレン-アセトンか



ジヨードピフェニル誘導体 8.68 g (0.0200 mol)、3-メチルジフェニルアミン 7.33 g (0.0400 mol)、炭酸カリウム 8.29 g (0.0600 mol)、銅粉 1.2 g、およびスルホラン 30 ml の混合物を、窒素置換後、220 °C で 18 時間加熱撹拌する。反応後、約 100 °C まで冷却し、水 200 ml を加え、15 分加熱撹拌し、上澄液を除く (本操作を 2 回行なう)。残さを塩化メチレンに溶解し、ろ別後、無水硫酸ナトリウムで乾燥し、溶媒を留去すると、かつ色油 12.7 g が得られる。これを、アルミナカラム (Woelm, N, Akt I) で分離すると、*n*-ヘキサン-塩化メチレン (4:1) 溶出部から、無色固体 4.42 g (収率 40 %) が得られる。アルミナカラムでさらに精製すると、mp 140 ~ 3 °C の無色粉状結晶となる。

元素分析: $C_{40}H_{36}N_2$ として

計算値 C 88.20% H 6.66% N 5.14%

ら 2 回再結晶すると、mp 208 ~ 209 °C の無色結晶が 4.8 g 得られる。収率 20 %。

元素分析: $C_{38}H_{32}O_2N_2$ として

計算値 C 83.18% H 5.88% N 5.11%

実測値 C 82.86% H 5.73% N 5.17%

(発明の効果)

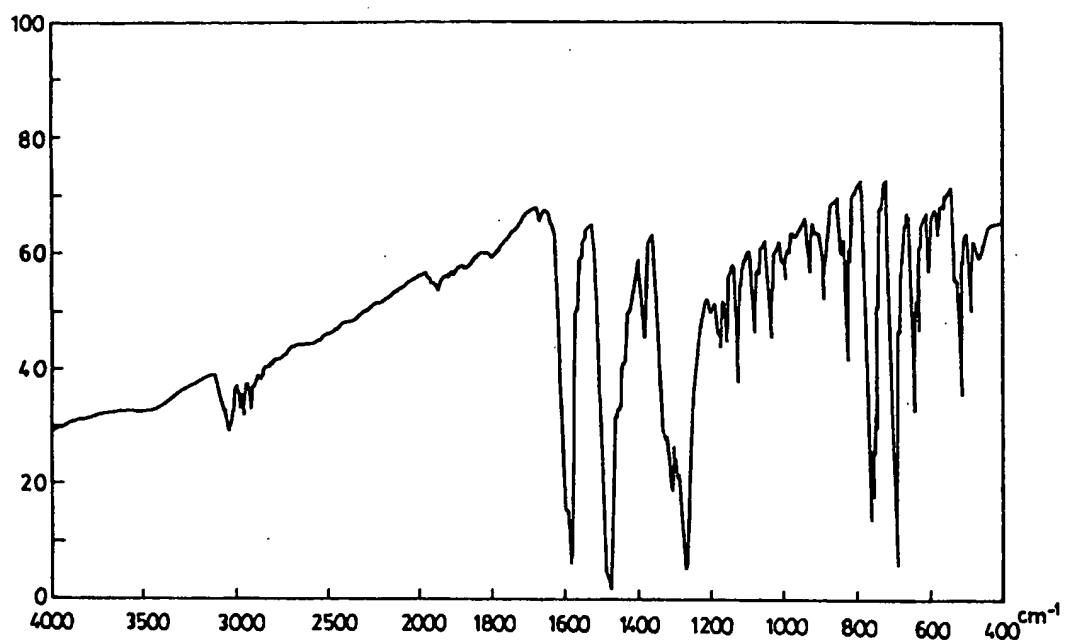
本発明は正孔輸送性の電荷輸送材料として耐酸化性にすぐれ、有用なベンジジン誘導体及びその製造方法を提供したものである。

4. 図面の簡単な説明

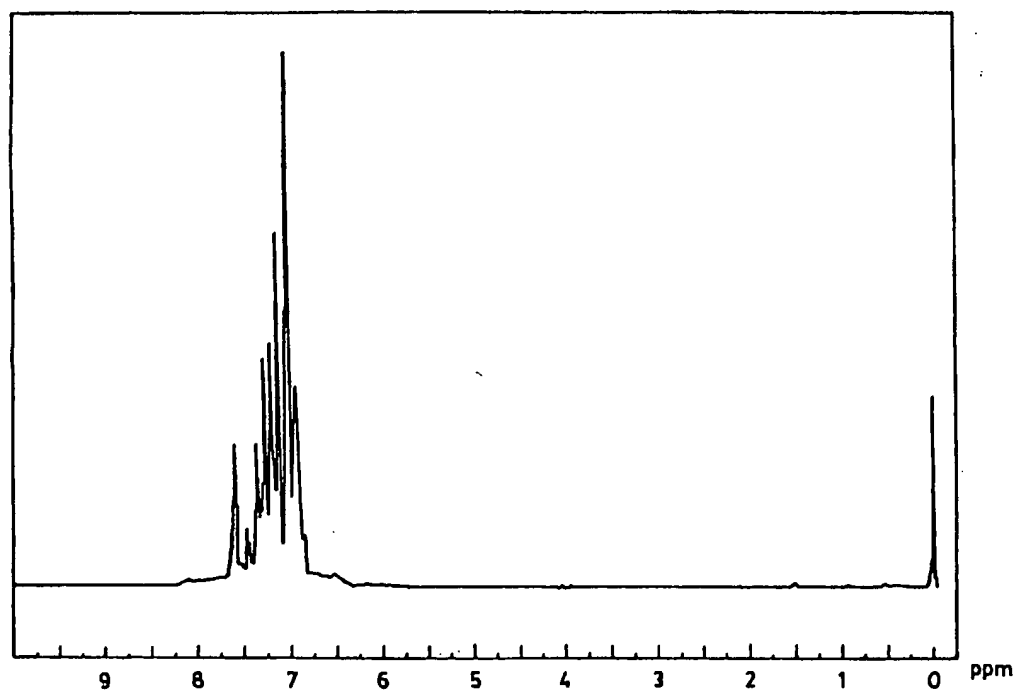
第 1 図は本発明のベンジジン誘導体例の赤外線吸収スペクトル図、第 2 図は同じく他のベンジジン誘導体例の NMR スペクトル図である。

代理人 弁理士 (8108) 大 塚 邦 久

第 1 図



第 2 図



REVIEWS

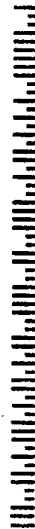
OFFICIAL BUSINESS

02 1A
000420501
MAILED FRC



05.10/09/05

RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
RETURN TO SENDER



RECEIVED

OCT 11 2005

USPTO MAIL CENTER

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.